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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/891,861 | 06/25/2001 | Randy C.H. Chang | VIS86-118CB | 4479 |

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POUGHKEEPSIE, NY 12603

EXAMINER

MACARTHUR, SYLVIA

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

1763

DATE MAILED: 11/06/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/891,861

Applicant(s)

CHANG, RANDY C.H.

Examiner

Sylvia R MacArthur

Art Unit

1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 June 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

2. Claims 1-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
3. Regarding claim 1, the claim recites the limitation "said nesting means" in line 8 and "said plurality of wafer nesting support heads" in line 14. There is insufficient antecedent basis for this limitation in the claim.
4. Regarding claims 8-11, the cited claims do not provide structural limitations, but merely discuss advantages of using previously claimed structures.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-4 and 8-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hempel, Jr. (USP 5,895,270) in view of Aiyer (USP 6,302,770).

Hempel, Jr. teaches an improved CMP apparatus 30 comprising a plurality of semiconductor devices including a plurality of carrier devices 14 (comprising nesting means). A plurality of polishing pad mechanisms 12 are associated with each carrier device so that each of the plurality of polishing pad 18 mechanisms separately and approximately simultaneously polishes one of the plurality of polishing pad mechanisms. The polishing pad mechanism is configured to rotate not only about the axis of spindle 16, but also in a horizontal and vertical direction.

Hempel, Jr. fails to teach a coaxial polishing dressing head assembly.

Aiyer teaches an in-situ pad conditioner for CMP polisher.

A retractable pad-conditioner 208 is positioned along the bottom perimeter of a wafer carrier 202. The pad-conditioner structure rotates in unison with the wafer carrier. Figure 2 illustrates the conditioner structure 208, holding a wafer (nesting) 206 under a carrier insert 204. The carrier 202 is positioned above a pad 210 laid on top of platen 212. The condition structure (dressing ring) 208 defines a ring structure. The structure is provided with protruding embedded diamond grit particles 208CD.

The motivation to exchange the pad-conditioner for the conventional carrier device of Hempel, Jr. is to allow for conditioning a pad in CMP without stopping the polishing process as discussed in the abstract of Aiyer.

Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention to modify the polishing system of Hempel, Jr. with the apparatus of Aiyer.

7. Claims 5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Art Unit: 1763

Hempel, Jr. (USP 5,895,270) in view of Aiyer (USP 6,302,770), in further view of Shimizu et al (USP 6,176,762).

The teachings of Hempel, Jr., Aiyer were discussed above.

Neither teaches a dresser ring comprising ceramic.

Shimizu teaches a dressing plate made of sintered porous alumina (ceramic). The plate is then wax-bonded to an impregnated sealed layer.

Shimizu teaches that in manufacturing a ceramic dresser a binder is used to reinforce the structure as well as adhere other layers, see column 3 lines 2-10.

Thus, it would have been obvious at the time of the claimed invention to manufacture the dressing ring of Aiyer out of ceramic and utilize a binder in the construction as is taught by Shimizu in order to reinforce the structure as well as adhere other layers.

8. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hempel, Jr. (USP 5,895,270) in view of Aiyer (USP 6,302,770), in further view of Shimizu et al (USP 6,176,762), as evidenced by Erickson (USP 6,080,216).

The teachings of Hempel, Jr., Aiyer, and Shimizu were discussed above.

Neither teaches a glass frit binder.

The use of glass frit binder is a well known suitable binder in the manufacture of ceramic articles as evidenced by Erickson.

Thus, it would have been obvious for one of ordinary skill in the art to utilize glass frit as a binder in the manufacture of the ceramic dressing ring produced from the teachings of Shimizu.

Art Unit: 1763

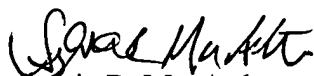
Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sylvia R MacArthur whose telephone number is 703-306-5690.

The examiner can normally be reached on M-F during the core hours of 8 a.m. and 2 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory L. Mills can be reached on 703-308-1633. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.


Sylvia R. MacArthur
November 4, 2002


GREGORY MILLS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700